LOCTITE®

EQUIPMENT
Operation Manual

Loctite® 100W UV Curing Wand System

Part Number 1377200

TABLE OF CONTENTS

1. PLEASE OBSERVE THE FOLLOWING 3

1.1 EMPHASIZED SECTIONS 3
1.2 ITEMS SUPPLIED 3
1.3 FOR YOUR SAFETY 3
1.4 FIELD OF APPLICATION, (INTENDED USAGE) 4

2. DESCRIPTION 4

2.1 THEORY OF OPERATION 4
2.2 OPERATING ELEMENTS AND CONNECTIONS, REFERS TO FIGURE 1 5

3. TECHNICAL DATA 7

3.1 ENERGY REQUIREMENTS 7
3.2 DIMENSIONS 7
3.3 UV OUTPUT CHARACTERISTICS 7

4. INSTALLATION 8

4.1 SPACE REQUIREMENTS 8

5. OPERATING THE UNIT 8

5.1 INSERTING AND REMOVING THE LIGHT GUIDES 8
5.2 LAMP INSTALLATION 9
5.3 POWERING UP 9
5.4 ADJUSTING DUAL WAND FOR MAXIMUM OUTPUT 100
5.5 SETUP 11
5.6 USING FOOT SWITCH / REMOTE DEVICE 11
5.7 APPLICATION USE OF INTENSITY ADJUSTER 11

6. CARE AND MAINTENANCE 12

6.1 REPLACING THE LAMP MODULE 12
6.2 RESET THE BULB LIFE TIMER 123

7. TROUBLESHOOTING 144

8. DOCUMENTATION 155

8.1 WIRING DIAGRAM 155
8.2 PIN CONNECTIONS 166
8.3 REPLACEMENT PARTS AND ACCESSORIES 166

9. WARRANTY 17

1. Please Observe the Following

1.1 Emphasized Sections

⚠ **WARNING!**
Refers to safety regulations and required measures that protect the operator or other persons from injury or danger to life.

! **Caution!**
Emphasizes what must be done or avoided so that the unit or other property is not damaged.

☞ **Notice:**
Gives recommendations for better handling of the unit during operation or adjustment, as well as for service activities.

1.2 Items Supplied

1 100W UV Curing Wand System
1 Pair of UV protective glasses
1 Foot switch
1 Users manual
1 Power cord

1.3 For Your Safety

For safe and successful operation of the unit, read these instructions completely. If the instructions are not observed, the manufacturer can assume no responsibility. Be sure to retain this manual for future reference.

⚠ **WARNING!**
Always wear the included UV safety glasses or glasses that conform to ANSI Z87.1/CSA Z94.3 when operating the unit.

⚠ **WARNING!**
Always cover hands, face and other parts of the body that may be exposed to UV light.

⚠ **WARNING!**
Never look into the end of the light guide.

⚠ **WARNING!**
Never open the shutter mechanism without the light guide installed.

⚠ **WARNING!**
Never remove the cover of the unit without first switching the power off and unplugging the power cord.

⚠ **WARNING!**
Damage to the power cord or the housing can result in contact with live electrical parts. Check the power cord and housing before each use. If the power cord or unit is damaged, do not operate.

The unit may be repaired only by a Loctite® authorized service technician.

1. Please Observe the Following (continued)

Caution!
Never turn the unit on without the lamp connected to the power supply.

Caution!
The energy emitted from the end of the light guide can heat any surface that it is directed at. Care must be taken to determine the proper offset distance and exposure time.

Caution!
Turning the lamp on and off frequently will cause the UV output of the lamp to decline at a faster rate. It is recommended that the unit be left on during breaks and short down times.

Caution!
Avoid making sharp bends in the light guide, as this will cause a loss of UV energy or possibly cause permanent damage. To prevent permanent damage, the minimum bend radii are 2.4 inches for a single light guide and 1.6 inches for a dual light guide.

1.4 Field of Application, (Intended Usage)

This Loctite® 100W UV Curing Wand System is designed for use with Loctite® products that cure when exposed to ultraviolet light produced by the unit. The UV energy is directed towards the product through a liquid filled light guide that is ordered separately. Several configurations of light guides are available from Loctite®, including single and dual ended types. The unit is also capable of interfacing with an external relay or PLC circuit.

2. Description

2.1 Theory of Operation

When the unit is switched on, electrical power is immediately supplied to the lamp and ignition should occur within several seconds. It will take several minutes for the lamp to reach full power. Curing takes place when the shutter is opened, allowing UV light to be directed from the end of the liquid filled light guide to the adhesive. The curing parameters, (UV irradiance and exposure time) must be determined before use. The UV irradiance at the adhesive surface can be varied by adjusting the distance of the light guide from the bond. If the light guide is moved to within ½ inch of the adhesive surface, vapors from the curing process may build up on the end of the light guide, reducing the UV intensity. The exposure time required to complete the curing process depends primarily on the UV irradiance and the properties of the adhesive product.
The timed exposure cycle starts by momentarily engaging the footswitch or when an externally operated device such as a PLC makes a relay closure across pins 1 and 9 of the nine pin footswitch connection on the rear panel. In the manual operating mode, the shutter remains open for as long as the footswitch or alternate external device maintains contact between pins 1 and 9. The hour meter, located on the front panel, records the total hours of operation accumulated by the lamp. UV lamps undergo a gradual reduction in UV output over time and it is recommended that the lamp output be monitored on a regular basis. The Loctite® 7020 UV Spot Radiometer P/N: 1406024 are designed for use with the 100W UV Curing Wand system.

2. Description (continued)

Turning the lamp on and off frequently will speed up the degradation process, therefore, it is recommended that the unit be left on during short work breaks such as lunch and other idle periods.

☞ Notice: The hour meter should only be reset when a new lamp is installed.

2.2 Operating Elements and Connections, refers to Figure 1

1. Power Inlet Module
   Connect the line cord to power inlet module here. Fuses are also located here.
2. Power Switch
3. Foot Switch Connection
   Standard 9 pin "D" connector for foot switch or other external switch.
4. Light Guide Receptacle
   Is used to retain the light guide.
5. Intensity Adjuster Knob
   Is used to adjust the UV intensity output.
6. LCM Display
   Is used to display the system information.
7. Lamp On + Shutter Open Indicator
   The green indicator will ignite when the lamp is ON and the shutter is OPENED. The indicator is to confirm that the system is in operating (with UV output).
8. Right Arrow Button
   Used to move the curser on the LCM display one step to right in "Setting" mode.
9. Up Arrow Button
   Used to increase the number on the highlighted digit on the LCM display in "Setting" mode.
10. Mode Button
    Used to switch the operating mode of the system. The mode sequence is "Setting Mode" > "Auto Mode" > "Manual Mode" > "Accumulate Time" > "Bulb Life Time" > "Turn On Times for system"
11. Lamp Cover Thumb Screws
    Used to remove the lamp cover for lamp installation and changes.

2. Description (continued)

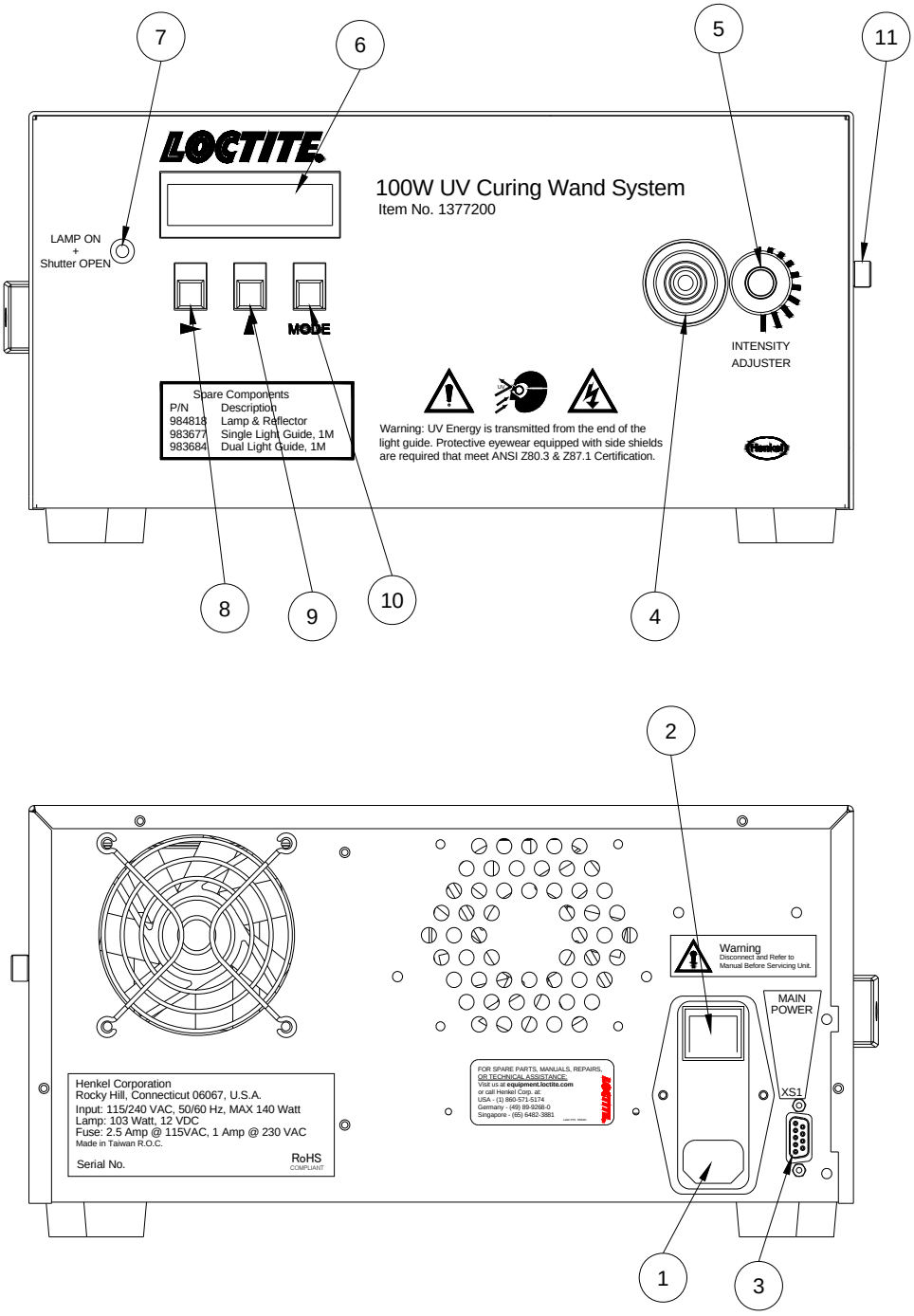


Figure 1

3. Technical Data

3.1 Energy Requirements

Power Supply: 120/240 VAC, 50/60 Hz.
Power Input: 140 Watt
Fuses: 2.5 Amp @ 115V, 1 Amp @ 240V

3.2 Dimensions

Width 330 mm
Depth: 280 mm
Height: 160 mm
Weight: 9.5 kg
Light Guides (sold separately)
Single end light guide, part 983677 – 1000mm long x 5mm diameter
Single end light guide, part 983800 – 1500mm long x 5mm diameter
Dual end light guide, part 983684 – 1000mm long x 3mm diameter

3.3 UV Output Characteristics

UV Bulb:	Mercury Short Arc Lamp 103Watt, 20 – 25VDC
Typical output:	8 - 10 W/cm^2 (using 5mm x 1000mm lightguide)*
UV Spectral Range:	300 – 500 nm
Primary Peak:	365 nm
Secondary Peaks:	315, 335 nm
Intensity Adjustment Range:	30% - 100%

*Exact output measurement is dependent on the brand and calibration method of the meter used, as well as the condition and straightness of the light guide.

4. Installation

4.1 Space Requirements

A space of 340mm wide x 400mm deep x 170mm height is required. It is important to have at least 200mm of space behind the unit to ensure proper airflow. The Loctite® 100W UV Curing Wand System only needs to be connected to either 120V/60Hz or 240V/50Hz outlet to operate.

Caution!
Do not block the intake and exhaust fans located on the back of the housing.

Caution!
The unit should always be operated with the rubber support feet resting on a flat surface.

Caution!
Do not operate with the unit resting on its side or at an angle greater than 15 degrees, front to back.

5. Operating the Unit

5.1 Inserting and Removing the Light Guides

Caution!
Be sure to remove the plastic end caps before attempting to use the light guide.

Caution!
If the free end of the light guide is secured at a fixed location, sharp bends should be avoided as it will cause a decrease in UV power.

Caution!
Never pull on the jacketing portion of the light guide. During installation or removal, grasp the light guide on the strain relief nearest the input end of the light guide.

- Installing single light guide - Insert the large end of single light guide into the light guide receptacle (4) located on the right side of the front panel. Push light guide firmly until it is fully engaged. Then tighten the set screws on the light guide receptacle to lock the light guide in place, using a 1.5mm allen wrench (do not over tighten).
- Installing dual light guide – Insert the dual wand light guide into the light guide receptacle (4). Use the set screws to secure the light guide (do not over tighten). See section 5.3 “Adjusting Wand for Maximum Output.”

☞ **Notice:**
It is important that the rotational position of a dual light guide be set to maximize the UV output for each wand. This setting is specific to each curing unit and light guide (See section 5.4 - Adjusting Dual Wand).

5. Operating the Unit (continued)

5.2 Lamp Installation

1. Unscrew lamp cover thumb screws (11).
2. Remove outer and inner lamp covers.
3. Depress the rear lamp connector and insert the lamp into the lamp housing by aligning the lamp alignment tabs with the lamp housing slots.
4. Insert the rear lamp contact into the rear lamp connector.
5. Secure the lamp by pulling and rotating the lamp clamps.
6. Install the flexible lamp connector to the front lamp contact.
7. Re-install the inner and outer lamp covers.

5.3 Powering Up

1. Switch the main power ON. The power switch (2) is on the lower right of the rear panel.
2. The LCM display (6) on the front panel will come on and flashing "Warming Up" text on it.
3. Allow approximately three minutes for the system warm up. When the system is ready, the system will show "Setting □□□.□s" on the LCM display. *
4. Set the operating mode by using the Mode Button (10).

   Setting Mode – Set the exposure time in "Auto Mode". Use the right arrow button (8) to set the time digits and the up arrow button (9) to set the desired exposure time.

   Auto Mode – Engage the footswitch to start the cycle. The UV exposure will begin immediately and continue until the system times out or the footswitch is engaged again.

   Manual Mode – Engage the footswitch to start UV exposure and hold until the curing cycle is complete. When footswitch released, the exposure will end immediately.

   Accumulate Timer – Used to indicate the total operating life of the system. The LCM display will show □□□□:□□ (hour : minute). The timer CANNOT be reset.

   Bulb Life Timer – Used to indicate the operated time of the UV bulb. The LCM display will show □□□□:□□ (hour : minute). The timer can be reset, see section 6.1 "Reset the Bulb Life Timer".

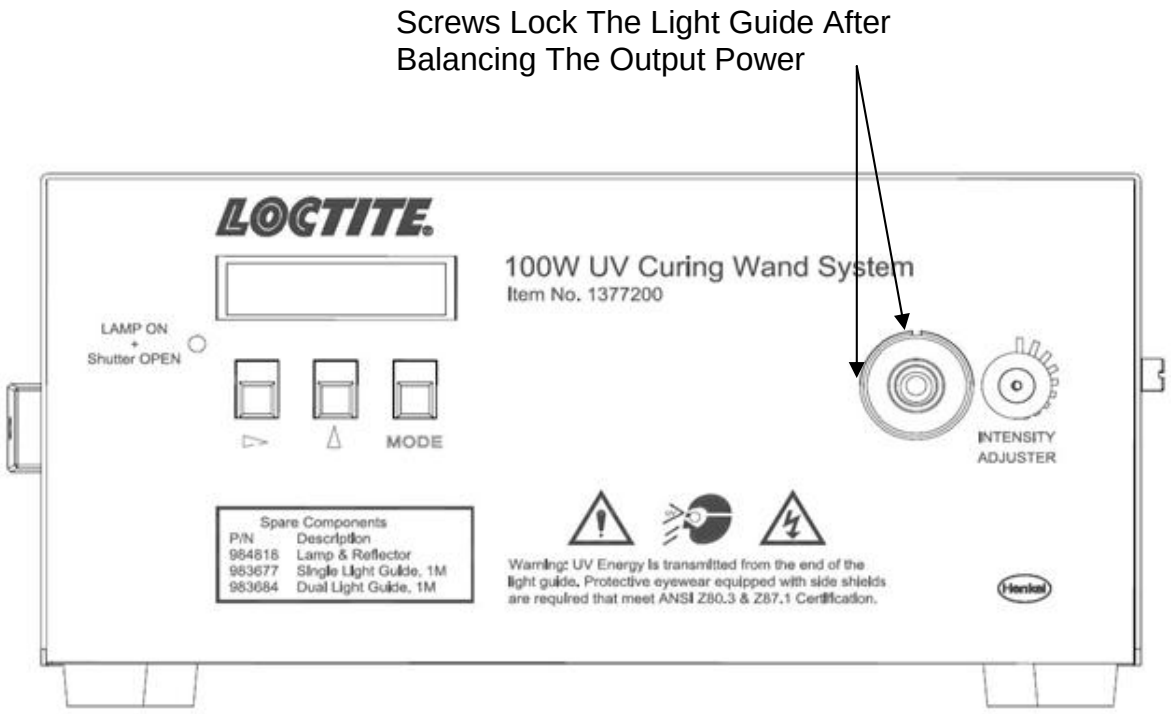
   Turn On Times for System – To indicate the number of times the unit has been powered on/off.
5. UV exposure cycles may be initiated by using an externally operated device, such as a PLC controlled relay in place of the footswitch.

* If possible, allow the system to warm up for an additional 5 minutes for the lamp to reach full power.

Notice:
Avoid shutting the main power off for brief periods of time. Frequent start-ups will cause the lamp to decay at an accelerated rate. If the system is shut down, wait a minimum of ten minutes before restarting. Once the lamp is ignited, allow it to operate for a minimum of fifteen minutes before turning it off.

5. Operating the Unit (continued)

5.4 Adjusting Dual Wand for Maximum Output


Screws Lock The Light Guide After
Balancing The Output Power
LOCTITE
100W UV Curing Wand System
Item No. 1377200
LAMP ON
+
Shutter OPEN
MODE
INTENSITY
ADJUSTER
Spare Components
P/N Description
984818 Lamp & Reflector
983677 Single Light Guide, 1M
983684 Dual Light Guide, 1M
Warning: UV Energy is transmitted from the end of the light guide. Protective eyewear equipped with side shields are required that meet ANSI Z80.3 & Z87.1 Certification.
Henkel

Objective
Balance the UV output from the two light guides of Loctite® P/N 983684.

Tools Needed
UV Radiometer – Loctite® 7020 UV Spot Radiometer P/N: 1406024

5. Operating the Unit (continued)

5.5 Setup

1. Insert the input end of the dual light guide into the light guide receptacle (4), gently pushing it as far forward as it will go. Lightly tighten the set screws on to the light guide, ensuring that the screws engage the locating groove.
2. Turn on the unit by switching the power switch (2) to the on position.
3. Set shutter timer to 2 seconds.
4. Insert one of the light guide ends into a Loctite® 7020 UV Spot Radiometer P/N: 1406024. Keep light guide straight during readings.
5. Press the and hold radiometer start switch.
6. Actuate the foot switch to open the shutter.
7. Release the radiometer start switch while the shutter is still opened.
8. Read and record the radiometer reading.
9. Position the second light guide in the radiometer.
10. Press the and hold radiometer start switch.
11. Actuate foot switch to open shutter.
12. Release the radiometer start switch while the shutter is still opened.
13. Read and record the radiometer reading.
14. Compare the two radiometer readings.
15. If the lower reading is equal to or greater than 90% of the higher reading, the dual wand is balanced.
16. If the lower reading is less than 90% of the higher reading, loosen the set screws and rotate the light guide a small increment around the light guide receptacle. Use the set screws to secure the light guide in that position.
17. Take and compare another set of radiometer readings.
18. Continue until the lower reading is equal to or greater than 90% of the higher reading.
19. Tighten the set screws to lock the input end of the dual wand in position.

5.6 Using Foot Switch / Remote Device

The Loctite® 100W UV Curing Wand System can also be actuated using a foot switch or by external devices. The foot switch connection is made up of a 9 pin D connector. Making a dry-contact relay closure across pins 1 and 9 can actuate the unit.

5.7 Application Use of Intensity Adjuster

This system has an adjustable iris which can aid in maintaining consistent intensity output over time. The output of a UV wand system will drop over time due to a variety of factors, with degradation of bulb output a primary cause. As needed, the % intensity output can be adjusted to maintain the optimum curing intensity for the process and compensate for the eventual drop-off in lamp intensity. The iris setting is adjustable in small increments with a relationship between the iris position and the output intensity, providing exceptional precision for the curing process.

Notice:

The nature of lamp manufacturing creates variations in the final product. As such, Henkel established a minimum intensity standard that all lamps meet. Some lamps in each batch will exceed that minimum by a good margin. The total useful lamp life is determined through factors beyond control of manufacturing practices. These outside factors include, but are not limited to, on/off cycles, continuous operation hours, contaminants, vibration, and improper handling practices.
This 100 Watt UV Curing System is rated to have a typical output of 8-10w/sq cm. Using the Loctite® Spot Radiometer and the wand system iris to adjust the initial output to 8W/sq cm and periodically adjusting the iris as the lamp naturally degrades will ensure optimum output consistency over an extended period of time.

6. Care and Maintenance

☞**Notice:**
It is recommended that the UV output from the lamp be monitored regularly using a Loctite® 7020 UV Spot Radiometer P/N: 1406024. If a radiometer is not used to monitor the lamp, it is recommended that the lamp be replaced when the hour meter (can be checked in "Bulb Life Time" mode), indicates 1,000 hours of operating time. It is normal for the lamp output to slowly decline over operating time, however, the effective life of the lamp will decrease significantly faster if it is turned on and off frequently.

! Caution!
It is recommended that the end of the light guide be positioned no closer than ½ inch from the Loctite® product being cured. The heat transmitted by the lamp can adversely affect the properties of the cured product or possibly cause damaged to the part surface.

☞ **Notice:**
Vapors from some products may gradually accumulate on the end of the light guide, reducing the UV output. It should be inspected regularly and cleaned as necessary using isopropyl alcohol and a soft, clean cloth.

! Caution!
Avoid placing sharp bends in the light guide. This reduces the UV output and may permanently damage the light guide. If the light guide is mounted on a fixture, secure it by the metal exit fitting and not the flexible plastic section.

☞ **Notice:** The intake and exhaust fan filter elements should be replaced as needed to insure proper cooling of the power supply and UV lamp assembly. They should be inspected routinely.

6.1 Replacing the Lamp Module

! Caution!
Do not touch the lamp module reflector or the lamp. Contaminants from hands will create "hot spots" and cause the module to fail prematurely. If either is accidentally touched, carefully wipe them with a clean, soft cloth and isopropyl alcohol.

1. Switch the power off and unplug the unit.

2. Allow several minutes for the lamp to cool.
3. Remove the two screws from the right side of the housing and lift off the lamp housing cover.
4. Disconnect the flexible lamp lead.
5. Depress the rear lamp connector while holding the ceramic base of the lamp to disconnect the rear lamp lead.
6. Remove the lamp/reflector assembly from the mounting block.
7. Install the new lamp module.
8. Be sure the lamp is flush in the mounting hole.
9. Reconnect the power leads.
10. Replace the housing cover.
11. Reset the "Bulb Hours Timer" to zero, see section 6.2 "Reset the Bulb Life Timer".

☞ Notice: Step 10 should only be done when a new lamp is installed.

6.2 Reset the Bulb Life Timer:

☞ **Notice:** The Bulb Life Timer should be reset after each lamp change.

1. With the Power Switch (2) in the off position, press and hold the Right Arrow Button (8) and Mode Button (10) simultaneously.
2. While holding the buttons in step 1, turn the Power Switch (2) on the rear of the unit to ON.
3. Key in the password "1211" by pressing the Up Arrow Button and Right Arrow Button. Once the password is entered press the Mode Button (10). "PASSWORD OK" will be displayed to indicate the password was entered correctly.
4. Press the Mode Button (10) again. The display should say "warming up" while the lamp warms up.
5. If the password is entered incorrectly "Password Err" will display and a tone will sound until the Mode Button (10) is pressed at which point the unit will warm up as normal with out resetting the meter.

☞ **Notice:** If retrying the above procedure but does not work, Please contact **Loctite®** Service at 1-800-LOCTITE (1-800-562-8483).

⚠ **WARNING!**

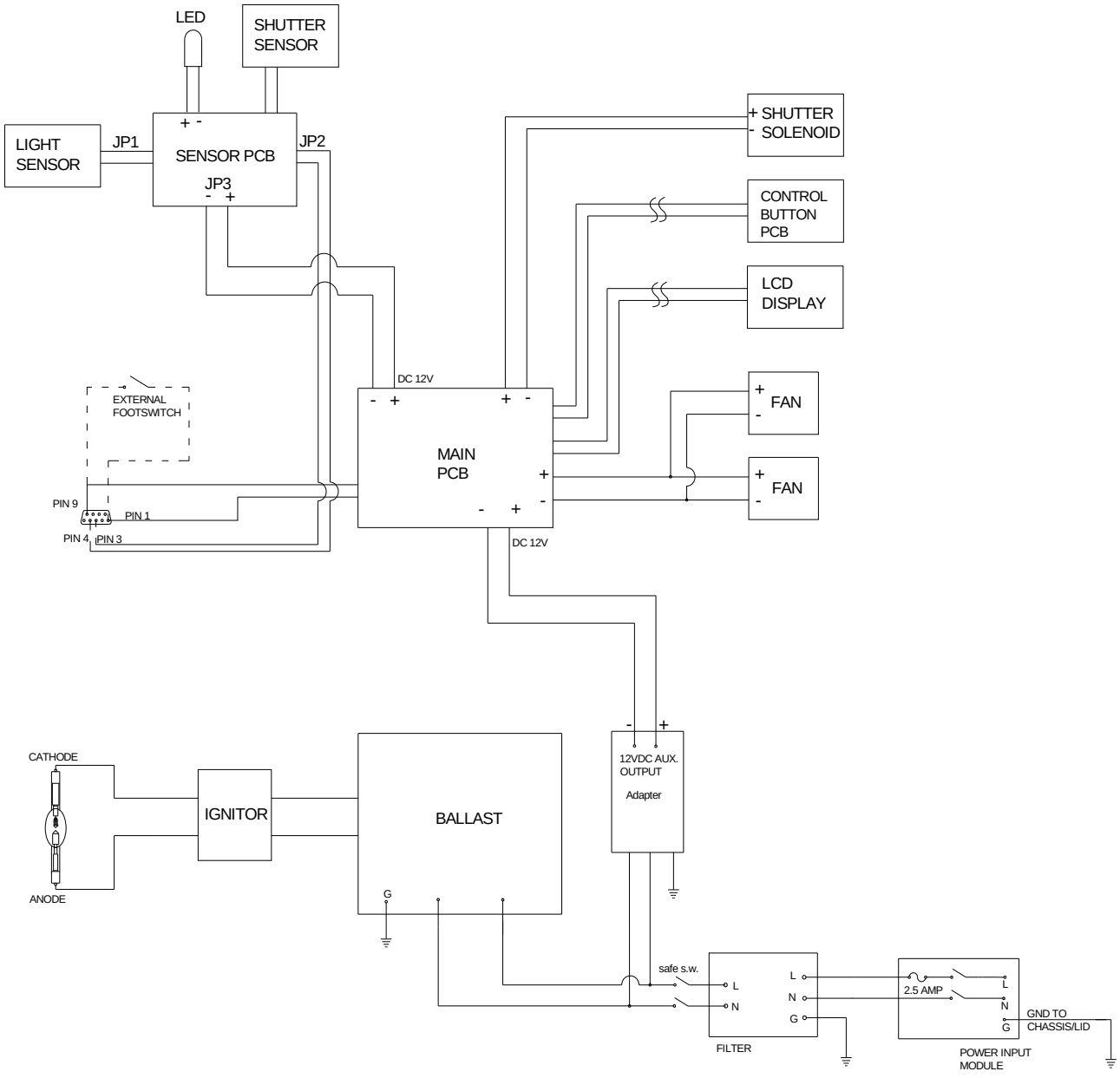
The UV lamp used in this unit contains a very small amount of mercury. Disposal of lamps should be done in accordance with state and local regulations.

7. Troubleshooting

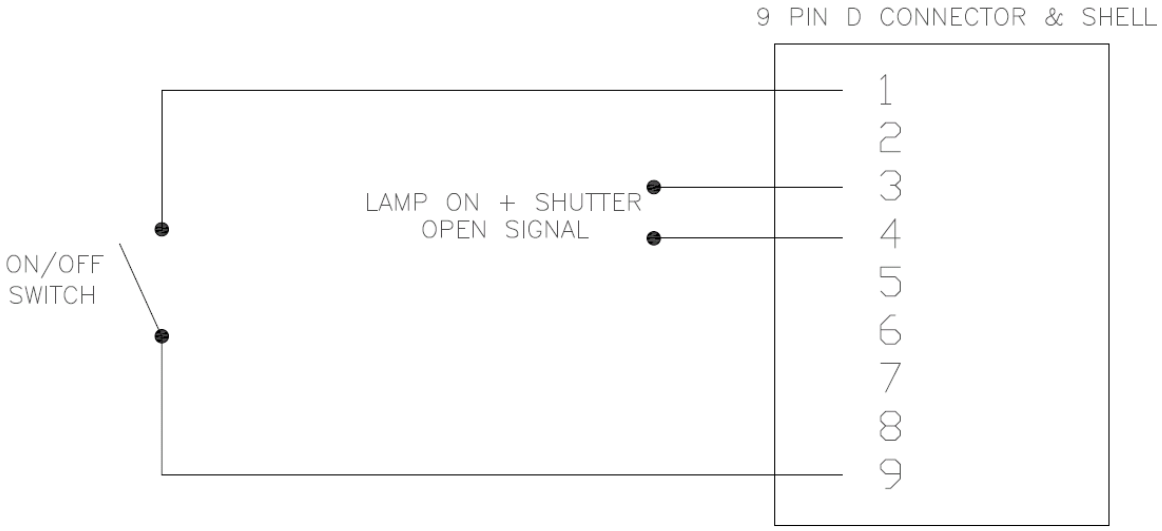
Type of Malfunction	Possible Cause	Correction
Power does not come on	– No voltage present. – Defective Fuse. – Defective Power Supply. – Defective Switch.	• Check wall circuit. • Replace fuse. • Call 800-562-8483. • Call 800-562-8483.
The shutter mechanism can be heard opening and closing, but no light is emitted from the light guide.	– Lamp failure. – Defective power supply. – Defective shutter.	• Replace lamp module. • Call 800-562-8483. • Call 800-562-8483.
Power comes on but light is not emitted from the light guide. The shutter mechanism makes no noise when foot switch is engaged.	– Foot switch is not plugged in properly. – Defective foot switch. – Defective shutter mechanism.	• Check foot switch connection. • Call 800-562-8483.
Lamp is on, but the fan does not operate	– Defective Power Supply.	• Call 800-562-8483.
Lamp does not light, but the fan is working	– Not enough cooling time. – The lamp is not connected – Lamp life has exceeded is useful life.	• Allow the lamp to cool down for about 5 minutes • Connect the lamp cord • Replace lamp module
All system functions appear to be operating, but the product does not cure completely, or if a radiometer is used to monitor the UV output, the power is low.	– UV output has declined due to normal lamp aging. – End of light guide has an accumulation of product or other contaminants – Light guide is not fully inserted in receptacle. – Light guide has exceeded is useful life. – Lamp cover is not on or is not making good contact with the cover safety switch.	• Replace lamp module. • Clean light guide with soft cloth and isopropyl alcohol. • Check light guide connection. • Replace light guide. • Ensure cover is on, check that the safety switch is engaged.

8. Documentation

8.1 Wiring Diagram



8.2 Pin Connections



8.3 Replacement Parts and Accessories

Loctite Part Number	Description
984818	Replacement Mercury Arc Lamp
983677	Single Light Guide, 5mm diameter x 1 meter long
983684	Dual Light Guide, 3mm diameter x 1 meter long
951681	Single Light Guide, 5mm diameter x 1.5 meters long
97210	UV Safety Glasses – Gray
98452	UV & Visible Light Safety Glasses – Orange
97201	Foot Switch Assembly
1406024	Loctite® 7020 UV Spot Radiometer P/N: 1406024

9. Warranty

For Loctite® 100W UV Curing Wand System

Henkel expressly warrants that all products referred to in this Instruction Manual for Loctite® 100W UV Curing Wand System (hereafter called "Products") shall be free from defects in materials and workmanship. Liability for Henkel shall be limited, at its option, to replacing those Products which are shown to be defective either in materials or workmanship or to credit to the purchaser the amount of the purchase price thereof (plus freight and insurance charges paid therefore by the user). The purchaser's sole and exclusive remedy for breach of warranty shall be such replacement or credit.

A claim of defect in materials or workmanship in any Products shall be allowed only when it is submitted to Henkel in writing within one month after discovery of the defect or after the time the defect should reasonably have been discovered and in any event, within twelve months after the delivery of the Products to the purchaser. No such claim shall be allowed in respect of Products which have been neglected or improperly stored, transported, handled, installed, connected, operated, used or maintained or in the event of unauthorized modification of the Products including, where products, parts or attachments for use in connection with the Products are available from Henkel, the use of products, parts or attachments which are not manufactured by Henkel.

No Products shall be returned to Henkel for any reason without prior written approval from Henkel. Products shall be returned freight prepaid, in accordance with instructions from Henkel.

NO WARRANTY IS EXTENDED TO ANY EQUIPMENT WHICH HAS BEEN ALTERED, MISUSED, NEGLECTED, OR DAMAGED BY ACCIDENT, OR IF THE SYSTEM USED TO DISPENSE ANY LIQUID MATERIAL OTHER THAN LOCTITE® PRODUCTS.

EXCEPT FOR THE EXPRESS WARRANTY CONTAINED IN THIS SECTION, HENKEL MAKES NO WARRANTY OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS.

ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND OTHER WARRANTIES OF WHATEVER KIND (INCLUDING AGAINST PATENT OR TRADEMARK INFRINGEMENT) ARE HEREBY DISCLAIMED BY HENKEL AND WAIVED BY THE PURCHASER.

THIS SECTION SETS FORTH EXCLUSIVELY ALL OF LIABILITY FOR HENKEL TO THE PURCHASER IN CONTRACT, IN TORT OR OTHERWISE IN THE EVENT OF DEFECTIVE PRODUCTS.

WITHOUT LIMITATION OF THE FOREGOING, TO THE FULLEST EXTENT POSSIBLE UNDER APPLICABLE LAWS, HENKEL EXPRESSLY DISCLAIMS ANY LIABILITY WHATSOEVER FOR ANY DAMAGES INCURRED DIRECTLY OR INDIRECTLY IN CONNECTION WITH THE SALE OR USE OF, OR OTHERWISE IN CONNECTION WITH, THE PRODUCTS, INCLUDING, WITHOUT LIMITATION, LOSS OF PROFITS AND SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER CAUSED BY NEGLIGENCE FROM HENKEL OR OTHERWISE.

Henkel Corporation
One Henkel Way
Rocky Hill, CT 06067-3910
USA

Henkel Canada Corporation
2225 Meadowpine Boulevard
Mississauga, Ontario L5N 7P2
CANADA

Henkel Corporation
Automotive/ Metals H.Q.
32100 Stephenson Hwy,
Madison Heights 48071
USA

Henkel Capital, S.A. de C.V.
Calzada de la Viga s/n Fracc.
Los Laureles
Loc. Tulpetlac, C.P. 55090
Ecatepac de Morelos, MEXICO

Henkel Singapore Pte Ltd
401, Commonwealth Drive
#03-01/02 Haw Par Technocentre
SINGAPORE 149598

Henkel (China) Company Ltd.
No. 928 Zhang Heng Road,
Zhangjiang, Hi-Tech Park, Pudong,
Shanghai, China 201203

Henkel Loctite Korea
8F, Mapo Tower, 418,
Mapo-dong, Mapo-gu,
Seoul, 121-734, KOREA

Henkel Japan Ltd.
27-7 Shin Isogo-cho, Isogo-ku
Yokohama, 235-0017
JAPAN

www.equipment.loctite.com

Loctite is a trademark of Henkel Corporation, U.S.A. © Copyright 2006. Henkel Corporation
Teflon is a registered trademark of E.I. DuPont de Nemours Co., Inc.
All rights reserved. Data in this operation manual is subject to change without notice.

Manual P/N: 8902190 Rev D, Date: 08/2010